



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Sn

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/545,554	04/07/2000	Richard B. Hook	13DV13349	1804
29399	7590	12/17/2004	EXAMINER	
JOHN S. BEULICK C/O ARMSTRONG TEASDALE LLP ONE METROPOLITAN SQUARE SUITE 2600 ST. LOUIS, MO 63102-2740			KIM, TAE JUN	
			ART UNIT	PAPER NUMBER
			3746	

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/545,554	Applicant(s) HOOK ET AL. CN	
	Examiner Ted Kim	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 09/20/2004 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 6, 8-11, 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schilling et al (5,630,319) in view of Briesch (5,564,269). Schilling teaches a combustor having 3 domes 61, 63, 65 and incorporating dual fuel premixers in each dome, i.e. of the type utilized by Joshi et al 5,351,477, *which is incorporated by reference* (see col. 3, 1st few lines) and hence operate fuel lean, i.e. operate with a fuel/air mixture equivalence ratio of less than one (see

col. 6, lines 4+ of Joshi et al 5,351,477). Schilling does not teach water injection into the premixers. Briesch teaches a water/steam injection system that injects steam 88 into the air from compressor 6 prior to injection into the combustor in order to increase the power output and reduce NOx emissions (col. 7, lines 27+). Such a combination of Briesch with Schilling/Joshi will result in the steam mixing with the compressed air upstream of the premixers of Schilling/Joshi and entering the centerbody 49 via passage 51 and then entering the combustor via 51. It would have been obvious to one of ordinary skill in the art to employ a water/steam injection system as taught by Briesch, in order to order to further increase the power output and/or NOx emissions.

4. Claims 5, 12-14, 18-20 rejected under 35 U.S.C. 103(a) as being unpatentable over Schilling et al (5,630,319) in view of Briesch (5,564,269), as applied above, and further in view of Talabisco et al (5,357,741). The prior art teach various aspects of applicant's claimed invention but do not explicitly teach the water delivery system operable in first and second mode relative to a predetermined value. Talabisco et al teach that it is old and well known in the art to control the steam/water based on the load, among other variables (see abstract and see col. 6, lines 62-68).

FIG. 2 is a graph that shows the steam-to-fuel ratio as a function of turbine firing temperature (T_s) for a given relative humidity, fuel gas composition and ambient temperature (100.degree. F.). The graph further shows that the steam-to-fuel ratio is a linear function of load since load can be directly correlated to turbine firing temperature T_s . (see (col. 6, lines 62-68).

This citation specifically teaches that when the load increases, the steam increases with the load¹, and hence any arbitrary point, including the 90% load point, can be considered the predetermined point for the sake of the claims for which the 2nd mode of operation is in effect. It would have been obvious to one of ordinary skill in the art to control the steam/water injection by using a first and second mode with a predetermined value, as taught by Talabisco et al, as being a notoriously old and well known method utilized in the art for controlling the water injection. As for the set point being greater than 90 percent of the rated power capability, that is within the ordinary skill in the art, as an obvious matter of finding the workable ranges in the art. Furthermore, for claim 5, all that is required is that water be injected at greater than 90% of the load. At near full load, that is when the temperatures are highest, as shown in Fig. 2 of Talabisco et al, and water injection most needed for its temperature reduction and NOx reduction. It would have been obvious to one of ordinary skill in the art to employ water injection at loads greater than 90% to reduce the temperature and NOx levels of Schilling et al.

Response to Amendment

5. Applicant's amendments to the claims have required new ground(s) of rejection as above.

Contact Information

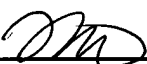
¹ Note that the steam/fuel ratio is increasing with the load (temperature) and the fuel is also increasing with the load (temperature) due to thermodynamics. Hence, the steam is increasing with respect to the load, in order for the

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are 703-872-9306 for Regular faxes and 703-872-9306 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler, can be reached on 571-272-4834.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861. General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at <http://www.uspto.gov/main/patents.htm>

		
Ted Kim	Telephone	571-272-4829
Primary Examiner	Fax (Regular)	703-872-9306
December 10, 2004	Fax (After Final)	703-872-9306
Technology Center 3700 Receptionist	Telephone	703-308-0861
Patents Assistance Center	Telephone	800-786-9199